

The system typically comprises a fluid collection apparatus; a drainage receptacle; and a connecting tube comprising a means for reducing or eliminating airlocks in said connecting tube and thereby providing sufficiently low backpressure such that a patient having a urinary bladder drained with said system maintains an average residual bladder urine volume of less than about 50 cubic centimeters more preferably less than about 30 or 25 cubic centimeters over a period of at least four hours preferably at least 8 hours after initial drainage without manipulation of components of the system. In various embodiments the collection apparatus comprises a Foley catheter. In various embodiments the drainage receptacle comprises a urine collection bag, e.g., a vented urine collection bag.

[0012] In certain embodiments the means for reducing or eliminating airlocks comprises a means for producing a downward spiral shape in said connecting tube. Such means include, but are not limited to an external semi-rigid coil through which the connecting tube is threaded, an external semi-rigid coil to which said connecting tube is attached, and/or a semi-rigid coil formed from all or a part of said connecting tube. In various embodiments the means for reducing or eliminating airlocks comprises a tensioner attached to the connecting tube. Suitable tensioners include, but are not limited to a spring or elastic strap attached to the connecting tube, an elastic or elasticized bellows tubing, a form for wrapping excess collection tubing, and/or an auto-winder. In various embodiments the tensioner is removably attached to said connecting tube. In various embodiments the tensioner comprises a clip for attachment to bedding, a bedside, or an iv stand.

[0013] In certain embodiments this invention provides a medical drainage device or system comprising a connecting tube, where the connecting tube comprising a means for reducing or eliminating airlocks in the connecting tube and thereby providing sufficiently low backpressure such that when a patient is equipped with said device or system to drain a bladder, said patient maintains an average residual bladder urine volume of less than about 50 cubic centimeters over a period of at least four hours after initial drainage without manipulation of components of said system. In various embodiments the means for reducing or eliminating airlocks comprises a means for producing a downward spiral shape in said connecting tube. In certain embodiments such means include, but are not limited to an external semi-rigid coil through which the connecting tube is threaded, an external semi-rigid coil to which said connecting tube is attached, and/or a semi-rigid coil formed from all or a part of said connecting tube. In various embodiments the means for reducing or eliminating airlocks comprises a tensioner attached to the connecting tube. Suitable tensioners include, but are not limited to a spring or elastic strap attached to the connecting tube, an elastic or elasticized bellows tubing, a form for wrapping excess collection tubing, and/or an auto-winder. In various embodiments the tensioner is removably attached to said connecting tube. In various embodiments the tensioner comprises a clip for attachment to bedding, a bedside, or an iv stand. In various embodiments the device or system further comprises a drainage device selected from the group consisting of a urinary catheter, a chest tube, a mediastinal tube, a nasogastric tube, and/or a Jackson Pratt tube. In various embodiments the drainage device or system further comprises a urinary leg bag which can optionally comprise a venting tube.

[0014] This invention also provides a urinary catheter comprising a connecting tube, where the connecting tube comprises a downward spiral shape.

[0015] Also provided is a urinary leg bag comprising a connecting tube and a venting system, wherein said connecting tube comprises a downward spiral shape and said venting system comprises a venting tube.

[0016] In certain embodiments this invention provides a collecting tube for use in a medical drainage device, where the collecting tube comprises a means for reducing or eliminating airlocks in the tube. In certain embodiments the means for reducing or eliminating airlocks comprises a means for producing a downward spiral shape in said connecting tube. Such means include, but are not limited to an external semi-rigid coil through which the connecting tube is threaded, an external semi-rigid coil to which said connecting tube is attached, and/or a semi-rigid coil formed from all or a part of said connecting tube. In various embodiments the means for reducing or eliminating airlocks comprises a tensioner attached to the connecting tube. Suitable tensioners include, but are not limited to a spring or elastic strap attached to the connecting tube, an elastic or elasticized bellows tubing, a form for wrapping excess collection tubing, and/or an auto-winder. In various embodiments the tensioner is removably attached to said connecting tube. In various embodiments the tensioner comprises a clip for attachment to bedding, a bedside, or an iv stand. In certain embodiments the tube comprises means for attachment to a waste receptacle for biological fluids.

[0017] This invention also provides methods of reducing urinary tract infection in a subject bearing a urinary catheter. The method typically involves providing a connecting tube coupled to the catheter where said a connecting tube comprises a means for reducing or eliminating airlocks in said connecting tube and thereby providing sufficiently low backpressure such that a patient having a urinary bladder drained with said system maintains an average residual bladder urine volume of less than about 50 cubic centimeters over a period of at least four hours after initial drainage without manipulation of components of said system. In various embodiments the catheter is a Foley catheter. In various embodiments the means for reducing or eliminating airlocks comprises a means for producing a downward spiral shape in the connecting tube. Such means include, but are not limited to an external semi-rigid coil through which the connecting tube is threaded, an external semi-rigid coil to which said connecting tube is attached, and/or a semi-rigid coil formed from all or a part of said connecting tube. In various embodiments the means for reducing or eliminating airlocks comprises a tensioner attached to the connecting tube. Suitable tensioners include, but are not limited to a spring or elastic strap attached to the connecting tube, an elastic or elasticized bellows tubing, a form for wrapping excess collection tubing, and/or an auto-winder. In various embodiments the tensioner is removably attached to said connecting tube. In various embodiments the tensioner comprises a clip for attachment to bedding, a bedside, or an iv stand.

[0018] In certain embodiments the connecting tube is not a straight tube.

[0019] Also provided are kits for draining a biological fluid from a site in a subject. The kits typically comprise a